What is claimed is:

1. A microenergy device for developing modulated microenergy in response to signals, comprising:

a microenergy generating unit for generating the microenergy; and

a micromechanical modulator for mechanically modulating the microenergy generated from the microenergy generating unit and finally developing the modulated microenergy,

wherein the microenergy generating unit includes one or more unit digital microenergy generators constructed to selectively generate any one of two different levels of microenergy, which are always kept constant, in response to the digital input signal.

2. The microenergy device as claimed in claim 1, wherein the microenergy generated from the digital microenergy generators is represented by any one of force, displacement, velocity, momentum, pressure, flow rate, flow velocity, temperature, heat flux, heat flow and reaction energy.

3. The microenergy device as claimed in claim 1, wherein the unit digital microenergy generator use one of electrostatic, piezoelectric, electromagnetic, thermopneumatic, bimetallic and phase change phenomena depending on the kind of the generated microenergy.

4. The microenergy device as claimed in claim 1, wherein the micromechanical modulator modulates the microenergy by using any one of a micromechanical structure, a micromechanism, a microfluidic element, a microthermal element and a microchemical element depending on the kind of the microenergy supplied by the digital microenergy generators.

5. The microenergy device as claimed in claim 1, wherein the micromechanical modulation performed by the micromechanical modulator is one of switching, amplification, attenuation, filtering, digital-to-analog conversion, analog-to-digital conversion and rectification.

6. The microenergy device as claimed in claim 1, wherein the microenergy

generating unit includes N digital microenergy generators; the micromechanical modulating unit includes 2N micromechanical modulators for modulating the digital microenergy generated from the respective N digital microenergy generators and obtaining the microenergy, and N output stations for outputting the microenergy obtained from the micromechanical modulating unit; one end of a first micromechanical modulator and one end of a second micromechanical modulator are connected to a first output station in parallel with the station; one end of an i-th micromechanical modulator is connected in series to (i-1)-th and (i-2)-th micromechanical modulators via an ((i-1)/2)-th output station, where i is assumed to be an odd number from 3 to 2N; the other end of the i-th micromechanical modulator and one end of the (i+1)-th micromechanical modulator are connected in parallel to ((i+1)/2)-th output station; the other end of the first micromechanical modulator is fixed; and the N unit digital microenergy devices are connected to the other end of (i-1)-th micromechanical modulator one by one so as to input the microenergy.

7. The microenergy device as claimed in claim 6, wherein the micromechanical modulator is constructed to sum up the microenergy obtained from the N output stations and to output the summed microenergy.

8. The microenergy device as claimed in claim 6, wherein a modulation rate of the i-th micromechanical modulator is equal to a combined value of modulation rates of the (i-1)-th and (i-2)-th micromechanical modulators, and a modulation rate of the (i+1)-th micromechanical modulator is equal to a combined value of modulation rates of the i-th micromechanical modulator and all micromechanical modulators connected in series to the i-th micromechanical modulator.

9. The microenergy device as claimed in claim 7, wherein a modulation rate of the i-th micromechanical modulator is equal to a combined value of modulation rates of the (i-1)-th and (i-2)-th micromechanical modulators, and a modulation rate of the (i+1)-th micromechanical modulator is equal to a combined value of modulation rates of the i-th micromechanical modulator and all micromechanical modulators connected in series to the i-th micromechanical modulator.

10. The microenergy device as claimed in claim 8, wherein the micromechanical modulators are springs, and the digital microenergy generators are constructed to be displaced between a first position and a second position in response to a value of the input signal and to apply deformation forces to the springs.

11. The microenergy device as claimed in claim 9, wherein the micromechanical modulators are springs, and the digital microenergy generators are constructed to be displaced between a first position and a second position in response to a value of the input signal and to apply deformation forces to the springs.

12. The microenergy device as claimed in claim 1, wherein the microenergy generating unit includes N unit digital microenergy generators; the micromechanical modulating unit includes N micromechanical modulators for modulating the microenergy from generated from the respective N digital microenergy generators and obtaining the microenergy, and one output station for outputting the microenergy obtained from the micromechanical modulators; the N digital microenergy generators are constructed to be connected to one ends of the N the micromechanical modulators one by one so as to input the microenergy; and the other ends of the N the micromechanical modulators are connected in parallel to the output station.

13. The microenergy device as claimed in claim 12, wherein the digital microenergy generators are constructed to output one of first pressure and second pressure in response to the digital input signal, and the micromechanical modulators are flow resistors constructed to reduce the pressure outputted from the digital microenergy generators and to provide the reduced pressure to the output station.

14. The microenergy device as claimed in claim 13, wherein each of the micromechanical modulators is a flow resistor having any one pressure reduction rate of pressure reduction rates which increase by multiples of two.

15. The microenergy device as claimed in claim 13, wherein the flow resistor is formed of one or more flow passages having an identical passage radius.

16. The microenergy device as claimed in claim 14, wherein the flow resistor is formed of one or more flow passages having an identical passage radius.

17. The microenergy device as claimed in claim 1, wherein the digital microenergy generators is one displacement body constructed to be displaced between a first position and a second position in response to a value of the input signal; and the micromechanical modulator comprises one spring with one end connected to the displacement body, and one mass connected to the other end of the spring.

18. The microenergy device as claimed in claim 1, wherein some or all of the digital microenergy generators or the micromechanical modulators are designed to have detailed structures or dimensions so that the microenergy can be generated or modulated according to a ratio of dimensions or physical properties instead of absolute magnitude of relevant dimensions or physical properties in order to cancel variation in a final output due to identical errors in fabricating processes or physical properties.